

## CLAIMS

What is claimed is:

1. A cushioned treadmill, comprising:  
  
treadbase comprising a deck that moves when an exerciser exercises on the treadbase; and  
  
a self-adjusting cushioning assembly configured to (i) provide cushioning to movement of the deck; and (ii) adjust the amount of cushioning provided to movement of the deck.
2. The cushioned treadmill of claim 1, wherein the self-adjusting cushioning assembly automatically adjusts when a user steps on the treadbase.
3. The cushioned treadmill of claim 1, wherein the self-adjusting cushioning assembly adjusts when a user having a different weight from the previous user steps on the treadbase.
4. The cushioned treadmill of claim 1, wherein the user can select the amount of cushioning to be provided by the self-adjusting cushioning assembly.
5. The cushioned treadmill of claim 1, further comprising a sensor for adjusting the amount of cushioning provided by the self-adjusting cushioning assembly.

6. The cushioned treadmill of claim 5, wherein the sensor comprises a deflection sensor assembly.

7. The cushioned treadmill of claim 6, wherein the deflection sensor assembly ascertains the weight of the user standing on the treadbase by monitoring the amount of deflection of the deck of the treadbase.

8. The cushioned treadmill of claim 7, wherein the deflection sensor assembly includes a hall effect sensor.

9. A treadmill as recited in claim 1, wherein the treadbase further comprises a treadbase frame, wherein the deck is coupled at one end to the treadbase frame and moves with respect to the treadbase frame when the user exercises on the treadbase frame.

10. A treadmill as recited in claim 9, wherein the treadbase further comprises first and second rollers mounted adjacent opposing ends of the deck and an endless belt trained about the rollers.

11. A cushioned treadmill, comprising:

a frame;

a deck mounted on the frame such that the deck moves with respect to the frame; and

a self-adjusting cushioning assembly configured to provide cushioning to movement of the deck with respect to the frame and to automatically adjust the amount of cushioning provided to the movement of the deck.

12. The cushioned treadmill of claim 11, wherein the frame comprises a tread base frame.

13. A cushioning treadmill as recited in claim 11, wherein the self-adjusting cushioning assembly comprises

(i) a cushioning mechanism positioned between the deck and the frame so as to cushion movement of the deck with respect to the frame;

(ii) a sensing assembly configured to sense deflection of the deck;

14. The cushioned treadmill of claim 13, wherein the self adjusting cushioning assembly further comprises a controller electrically coupled to the cushioning mechanism and the sensing assembly such that the amount of cushioning provided to movement of the deck is adjusted in light of feedback received by the controller regarding the amount of deflection experienced by the deck

15. The cushioned treadmill of claim 12, wherein the sensor is electrically coupled to the cushioning mechanism such that upon sensing deflection of the deck, the cushioning mechanism is adjusted.

16. A treadmill as recited in claim 12, further comprising a controller electrically coupled to the sensor and the cushioning mechanism wherein upon sensing deflection of the deck, the sensor sends a signal to the controller and the controller sends a signal to the cushioning mechanism to adjust the amount of cushioning of the deck.

17. A treadmill as recited in claim 16, wherein the controller comprises an input mechanism such that the user can input a desired amount of cushioning.

18. A treadmill as recited in claim 17, wherein the user can input a desired amount of cushioning, the desired amount of cushioning selected from the group consisting of hard, medium or soft cushioning.

19. A treadmill as recited in claim 12, wherein the sensor comprises a Hall effect sensing mechanism.

20. A treadmill as recited in claim 12, wherein the sensor comprises an optical sensor.

21. A treadmill as recited in claim 12, wherein the sensor comprises a potentiometer.

22. A treadmill as recited in claim 21, wherein the sensor comprises a linear potentiometer.

23. A treadmill as recited in claim 21, wherein the sensor comprises a rotary potentiometer.

24. A treadmill as recited in claim 12, wherein the sensor comprises a contact sensor.

25. A treadmill as recited in claim 12, wherein the sensor comprises a non-contact sensing device.

26. A treadmill as recited in claim 25, wherein the self-adjusting cushioning assembly includes an adjustment mechanism.

27. A treadmill as recited in claim 26, wherein the adjustment mechanism is selected from the group consisting of a realogic mechanism, an airbag, a spring, an air shock, a hydraulic cylinder, a hydraulic bellow, a leaf spring and a coil spring, a solid hallow elastomeric member, a bellows, a cylinder, and a gas shock.

28. A cushioning treadmill configured such that the amount of cushioning is automatically set based on certain initial desired input levels of cushioning selected by the user, comprising:

a treadbase comprising;

a frame;

a deck;

an endless belt trained about first and second rollers coupled to the frame;

a cushioning mechanism configured to cushion movement of the deck with respect to the frame; and

a sensing assembly configured to sense deflection of the deck and to adjust the amount of deflection of said deck based on the amount of deflection sensed by the sensing assembly.

29. A treadmill as recited in claim 28, wherein upon sensing a deflection that is greater than an amount that is initially selected by the user upon initial input, a controller signals the adjusting mechanism to decrease the amount of cushioning.

30. A treadmill as recited in claim 28, wherein upon sensing a deflection that is less than an amount that is initially selected by the user upon initial input, a controller signals that adjusting mechanism to increase the amount of cushioning.

31. A treadmill as described in claim 30, wherein the sensing assembly comprises a sensor and a controller, wherein the controller is electrically coupled between the sensor and the cushioning mechanism.

WORKMAN NYDEGGER  
A PROFESSIONAL CORPORATION  
ATTORNEYS AT LAW  
1000 EAGLE GATE TOWER  
60 EAST SOUTH TEMPLE  
SALT LAKE CITY, UTAH 84111

32. A self-adjusting, cushioned treadmill configured to enable a user to input a desired amount of cushioning and to self-adjust during use of the treadmill such that the desired level of cushioning is achieved, the treadmill comprising:

a frame;

a deck moveably coupled to the frame;

first and second rollers coupled to opposing ends of the frame;

a belt trained about said rollers such that a running surface of said belt extends over said deck,

a cushioning mechanism configured to cushion movement of the deck with respect to the frame;

a sensor adapted so as to sense deflection of the deck;

a controller electrically coupled to the sensor and to the cushioning assembly, the controller having user inputs enabling the user to select a desired amount of cushioning within a range of available cushioning, such that upon sensing an amount of deflection of the deck that is not in accordance with the amount of cushioning selected by the user, the cushioning mechanism adjusts the amount of deflection of the deck.



33. A cushioned treadmill, comprising:

a treadbase having a treadbase frame and a deck movably coupled to the treadbase frame;

a cushioning mechanism positioned so as to cushion movement of the deck with respect to the frame;

a sensing assembly configured to sense deflection of the deck; and

a controller electrically coupled to the cushioning mechanism and the sensing assembly such that the cushioning mechanism is adjusted based on information received from the sensing assembly.

34. A self-adjusting, cushioned treadmill configured to enable a user to input a desired amount of cushioning and to self-adjust during use of the treadmill such that the desired level of cushioning is achieved, the treadmill comprising:

- a frame;
- a deck moveably coupled to the frame;
- first and second rollers coupled to opposing ends of the frame;
- a belt trained about said rollers such that a running surface of said belt extends over said deck,
- a cushioning mechanism configured to cushion movement of the deck with respect to the frame;
- a sensor adapted so as to sense deflection of the deck;
- a control electrically coupled to the sensor and to the cushioning assembly, the controller adjusting the cushioning mechanism to a preadjustment setting based on the deflection of the deck.

35. The self-adjusting cushioning treadmill of claim 34, wherein the sensor provides a coarse weight reading.

36. The self-adjusting cushioning treadmill of claim 34, wherein the coarse weight reading is based on the deflection of the deck.

37. The self-adjusting cushioning treadmill of claim 34, wherein the coarse weight reading is made when the user first steps on the deck.

38. The self-adjusting cushioning treadmill of claim 34, wherein the preadjustment setting of the cushioning mechanism is based on the coarse weight reading.

39. The self adjusting cushioning treadmill of claim 34, wherein a plurality of coarse weight categories are utilized to determine the preadjustment setting.

40. The self adjusting cushioning treadmill of claim 34, wherein the preadjustment setting provides an amount of cushioning within a range of available cushioning.

41. The self adjusting cushioning treadmill of claim 34, wherein subsequent to setting the preadjustment setting, upon sensing an amount of deflection of the deck that is not in accordance with the desired amount of cushioning, the cushioning mechanism adjusts the amount of deflection of the deck.